

REMARKS/ARGUMENTS

The Claims are not amended.

Claims 13, 15-16, 21-23, 26 and 28 are directed to polymer composition comprising a polymer (P1) and a co-oligomer (O1), co-oligomer (O1) requiring the presence of component (B) carrying at least one phosphonate group  $-PO(OH)(OR_1)$  with  $R_1$  being a hydrogen atom or an alkyl radical containing from 1 to 11 carbon atoms. Claim 13 is representative:

Claim 13: A polymer composition comprising

- 1) a polymer (P1) comprising at least 50% by weight of monomeric units derived from an ethylenically unsaturated monomer (M1), and
- 2) at least one co-oligomer (O1) comprising at least:
  - a) a component (A) comprising at least one monomeric unit identical to that derived from the monomer (M1) on which the polymer (P1) is based, and
  - b) a component (B) comprising at least one monomeric unit (m2), derived from an ethylenically unsaturated monomer, carrying at least one phosphonate group  $-PO(OH)(OR_1)$  with  $R_1$  being a hydrogen atom or an alkyl radical containing from 1 to 11 carbon atoms,

wherein the number-average molar mass of polymer (P1) is greater than 30,000 and the number-average molar mass of co-oligomer (O1) is less than or equal to 30,000.

The Examiner has maintained the rejection of these claims over Padget and Denk (U.S. 2,971,948), and has included new Claims 44 and 45 in this rejection.

It is Applicants' position that Denk does not relate to vinylidene chloride-based materials, as does Padget. Denk relates to vinyl chloride materials, with the possible optional minor presence of vinylidene chloride (col. 1, lines 15-17 and line 66 - col. 2, line 1 of Denk).

Contrary to the position of the Office, this disclosure of the optional minor presence of vinylidene chloride does not make the vinyl chloride materials of Denk into vinylidene chloride-based materials.

In repeating the rejection over Denk the Examiner has taken the following position:

Denk *et al.* (US '948) discloses vinylidene chloride copolymers (1:16-17; 1:67-2:6; 4:6-15) comprising vinyl phosphonic acids (1:57-70) as adhesion promoters (2:7-8). Denk *et al.* (US '948) clearly discloses copolymers containing vinyl chloride (1:70) and vinylidene chloride (2:1); i.e. a copolymer is synthesized from vinyl chloride, vinylidene chloride, and vinyl phosphonic acid (4:6-15) {substituting vinylidene chloride for vinyl acetate in Ex. 1 (3:5-19)}. Furthermore, Denk *et al.* (US '948) discloses the weight portion of vinyl chloride to vinylidene chloride is 95:5 to 5:95, indicating a substantial amount of vinylidene chloride {up to 95 wt%} may be employed in the composition (2:7-15; 4:5-15).

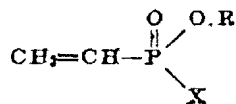
As noted, this position is based on col. 1, lines 16-17 of Denk:

1:

**The present invention relates to copolymers of vinyl chloride.**

Col. 1, lin67-col. 2, line 6:

Now we have found that vinyl phosphonic acid and/or vinyl phosphonic acid dichloride and/or the transformation products thereof, such as compounds having the formula:



wherein R may represent an alkyl group containing 1-4 carbon atoms or the group  $-\text{CH}_2-\text{CH}_2-\text{OH}$ , and X represents a halogen atom or an OH-group, can be copolymerized with vinyl chloride and other polymerizable monomers copolymerizable with vinyl chloride, such as vinyl esters, preferably vinyl acetate, and also vinyl formate, vinyl propionate, vinyl octanoate, vinyl stearate,

vinylidene chloride, acrylonitrile, and acrylic and methacrylic esters, for example those esters the alcoholic radical of which has a chain length of 1-4 carbon atoms. The proportion by weight of the phosphorus compound to the sum total of the other polymer components may vary within the limits of 10:90 to 0.10:99.90.

and col. 4, lines 6-15:

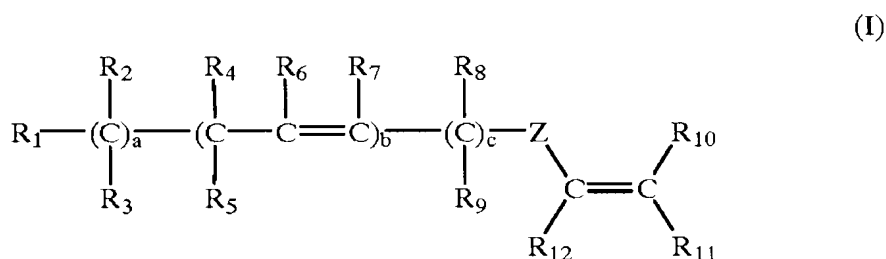
1. A copolymer of 0.1-10 percent by weight of a member selected from the group consisting of vinyl phosphonic acid and vinyl phosphonic acid dichloride and 99.9-90 percent by weight of a mixture of vinyl chloride and a vinyl monomer selected from the group consisting of vinyl acetate, vinyl formate, vinyl propionate, vinyl octanoate, vinyl stearate, vinylidene chloride, acrylonitrile, and acrylic- and methacrylic-acid esters, the ratio, in parts by weight, of vinyl chloride to said vinyl monomer being in the range between 95:5 and 5:95.

As provided in paragraph 3 of the Bodart Declaration, one of ordinary skill in the art would *not* look to Denk in order to modify Padget.

With regard to present Claims 36-43, the Examiner cites Padget in view of Thames. In making the combination, the Examiner notes page 9, lines 4ff of Padget wherein internally plasticizing comonomers are described, all of which are acrylate type comonomers or alkenes. The position has been taken that it would have been obvious to one of ordinary skill

in the art to substitute the monomer depicted at column 5, line 20 of Thames for the internally plasticizing comonomer of Padget.

The problem with this reasoning is that the monomer of Thames necessarily requires the presence of an internal unsaturation (note that “b” must be one or two in formula (I) of Thames):



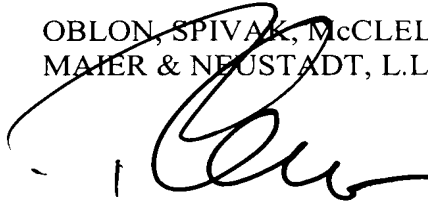
See column 6, lines 25-26 thereof. Thus, Thames correctly characterizes this monomer has **crosslinkable** at column 5, lines 12-13 thereof. As supported by the attached Declaration of Vincent Bodart (see, e.g., para. 4), there is no relationship between the internally plasticizing comonomers of Padget and the internally plasticizing and *crosslinkable* monomers of Thames, either in function or effect. In this regard, and again, one of ordinary skill in the art would not modify Padget by substituting the Thames internally plasticizing and crosslinkable monomers for the purely internally plasticizing comonomer described therein. Note also the fact that the internally plasticizing and crosslinkable monomers of Thames are nothing like those specified in new Claims 46-47. Bodart Declaration, para. 5.

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Accordingly, and in view of the above amendments and remarks Applicants respectfully request the reconsideration and withdrawal of the outstanding rejections and the passage of this case to Issue.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Richard L. Treanor', is written over a horizontal line.

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